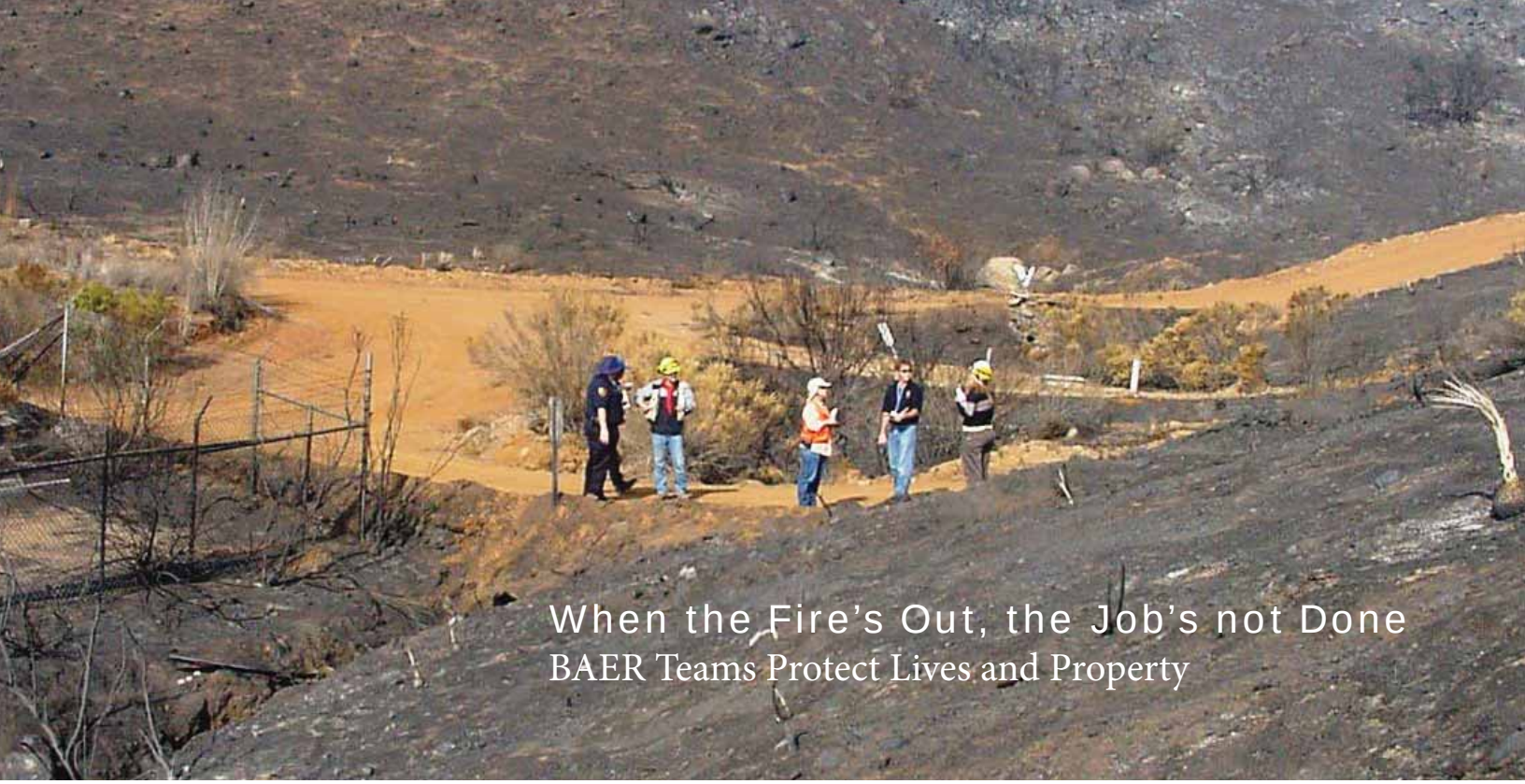

When the Fire's Out, the Job's not Done

BAER Teams Protect Lives and Property

By Pete Cafferata, Forest Hydrologist & John Munn, Soil Erosion Studies Project Leader, Sacramento Headquarters

In an effort to prevent loss of life and property due to landslides and mud flows, CAL FIRE joined many other state and federal agencies to conduct post-fire Burned Area Emergency Response (BAER) assessments for the southern California fires that occurred in late October and early November of last year.

Overall, more than 90 state employees conducted BAER assessments on almost 400,000 acres of state responsibility area (SRA) lands.

These state assessments were conducted in response to Governor Schwarzenegger's Executive Order (S-13-07) and were focused primarily on burned areas on or next to SRA lands. The U.S. Forest Service (USFS) and Department of Interior (DOI) conducted BAER assessments on federal lands.

While the USFS has conducted multi-disciplinary BAER assessments for several years, this is the first time CAL FIRE has undertaken post-fire assessment work on such a large scale. A framework for the State's response was provided by the post-fire work on the Angora Fire in the Lake Tahoe Basin earlier in 2007.

Post-fire watershed rehabilitation has evolved considerably since the 1950's, when annual rye grass was commonly spread by planes and helicopters on burned hill slopes. This practice continued through the 1980's, but research conducted in the 1990's showed that it is rarely effective in preventing surface erosion or mud flows.

Current post-fire assessments focus on identifying on-site and downstream threats to public health and safety, with less emphasis on preventing hill slope erosion.

above: Rice Fire state BAER team examines burned watershed above Red Mountain Reservoir in San Diego County. Photo by Pete Cafferata.

right: Dave Longstreth, California Geological Survey, views homes at risk in the Santiago Fire during a helicopter reconnaissance flight. Photo by Clay Brandow.

To cover the large number of Southern California wildfires that occurred in late 2007, the state formed seven BAER teams made up of representatives from CAL FIRE, California Geological Survey, Department of Water Resources, Department of Fish and Game, Department of Parks and Recreation, and Regional Water Quality Control Boards. These teams consisted of engineers, geologists, hydrologists, foresters, biologists, botanists, archeologists and GIS experts.

BAER Team members looked for threats to the public from landslides, mud flows, flooding, and road hazards. They also worked to identify risks to water quality, botanical and cultural resources, wildlife, and fisheries. The teams determined whether measures were needed to prevent or mitigate identified threats.

Six state teams conducted assessments on the Santiago, Canyon, Rice, Witch/ Poomacha, Harris, and Corral Fires. An additional team was assembled for the remaining smaller fires. Coordination and direction of the teams was provided by a Multi-Agency Support Group (MASG) that was led by the Federal Emergency Management Agency (FEMA) and the state Office of Emergency Services (OES).

The assessment process used by the BAER teams was similar on each of the 2007 wildfires.

First, individual teams were assembled at the MASG Headquarters in San Bernardino County, where a CAL FIRE team leader was assigned. Each team received background information on their assigned fire during an orientation session. Initial information included soil burn severity maps developed from satellite imagery and summary directions on how to conduct the assessment.

After arriving at their assigned fires in Orange, Los Angeles, San Bernardino, and San Diego Counties, the BAER teams identified preliminary values-at-risk using maps and Google Earth imagery, including homes, highways, rail lines, businesses and water storage reservoirs. The teams then began more detailed field investigations, particularly in areas with higher burn severity and identified values-at-risk. Typical team recommendations included the need for detailed follow-up inspections at sites with a high risk to human life from landslides and mud flows and the use of rain gauge systems with telemetry to provide "early warning" for homeowner evacuations. Measures for protecting threatened or endangered (T/E) species and archeological sites were also recommended.

The Santiago Fire in Orange County posed the biggest threat to human life, where extreme hazards exist for mud flows in Modjeska, Williams and Silverado Canyons. By mid-December, evacuations had already been ordered twice in these areas as a result of post-fire rainstorms.

Several lessons were learned from the state BAER teams' assessments. First, although the MASG effort was successful, improved coordination and communication is needed among the many state, local, and federal agencies that may be called upon to respond to future post-fire assessments.

Second, funding mechanisms and cost recovery plans need to be better coordinated among all local, state and federal agencies that may be called upon to respond to these types of missions.

Finally, if the State of California continues to conduct post-fire assessment work on major wildfires, training and funding is needed to prepare Emergency Response Incident Management Teams.

All the state and federal BAER reports are posted on the following website: http://www.oes.ca.gov/Operational/OESHome.nsf/PrintView/6C9651A85E8E98D988257398007B899F?OpenDocument

above: A Burned watershed from the Rice Fire in San Diego County around a water storage tank at the Red Mountain Reservoir.

left: Houses evaluated for risk of mud slides below a burned steep drainage from the Rice Fire in San Diego County. Photo by Pete Cafferata.